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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,907	05/12/2006	Friedrich Boecking	R.306606	3247
2119	7590	09/15/2008		
RONALD E. GREIGG GREIGG & GREIGG P.L.L.C. 1423 POWHATAN STREET, UNIT ONE ALEXANDRIA, VA 22314			EXAMINER SHARPE, DANIEL T	
			ART UNIT	PAPER NUMBER
			3752	
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			09/15/2008 PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,907

Applicant(s)

BOECKING, FRIEDRICH

Examiner

DANIEL T. SHARPE

Art Unit

3752

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 4/4/06; 5/12/06
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "27" and "24" have both been used to designate a spring element. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 28 recites the limitation "a spring element" in line 2. This limitation is indefinite due to its double inclusion. It is unclear if the applicant is claiming the

previously cited feature or a separate one. For the purpose of this examination the limitation in claim 28 will be believed to refer to element 24 from Applicant's figure 1.

4. Claim 32 recites the limitation "the step" in line 4. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 33 recites the limitation "the guide portion" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

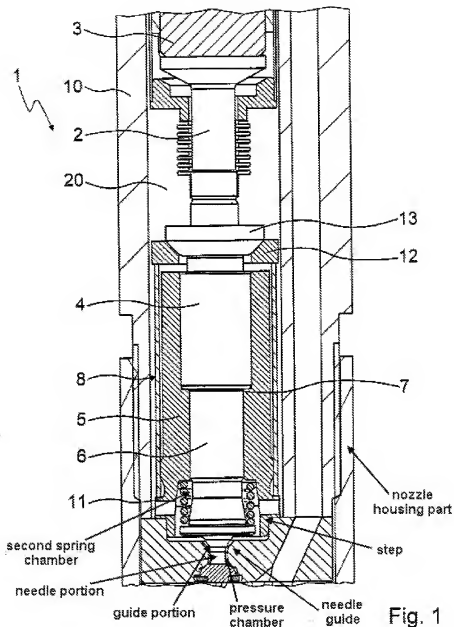
7. **Claims 16-21 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmieder (US 2003/0034594).**

Regarding claim 16: Schmieder discloses a pressure booster(4)received in a booster housing(5) braced on a spring element(8) and as a result the booster housing is fixed on a nozzle housing part(see examiner generated figure 1).

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Regarding claims 17-21: Schmieder discloses the booster housing being enclosed by an injector housing part(10), the injector triggered by a piezoelectric actuator(3,2) which acts directly on the pressure booster.

Regarding claim 31: Schmieder discloses a step (see examiner generated figure 1) that guides the movement of the booster housing.



8. Claims 16, 32 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Magel (US 20060043209).

Magel discloses a high pressure fuel reservoir (2), a pressure booster (14), an injection valve member having booster portion (28) and a needle portion (24) that closes

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the opening. Magel also discloses pressure booster (14) received in a housing (36) and braced on a spring element (38) which surrounds the booster housing. Furthermore, Magel discloses a first spring chamber (12) and a second spring chamber (20) surrounding the booster portion of the injection valve member, the spring chambers communicating hydraulically with one another through at least one groove (29) in the step (this step is interpreted as the step at the groove first occurred), an annular gap (17) and grooves (21) in the nozzle housing part (8). The system pressure prevails in the first spring chamber, the second spring chamber, as well as the pressure chamber.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. **Claims 22-28 rejected under 35 U.S.C. 103(a) as being unpatentable over Schmieder (US 2003/0034594).**

Regarding claims 22-25 and 28: Schmieder discloses all of the elements of claims 22-25 except for a separate sleeve element sealed against the booster housing via a bite edge. Schmieder does disclose a booster housing(5) that performs the functions of both the booster housing and sleeve. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the booster housing of Schmieder into two separable parts joined with a sealing face (bite edge), since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Regarding claim 26: Schmieder discloses a booster housing/sleeve combination that laterally defines and seals off a booster chamber(7).

Regarding claim 27: Schmieder discloses a booster chamber defined on opposite sides by a lower end face of the pressure booster(4) and by an end face of the booster portion(6) of the injection valve member.

Regarding claim 35: Schmieder discloses a leakage flow from the booster chamber (7) between the booster housing (5) and the pressure booster(4) and booster portion(6) (paragraph 29).

12. Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmieder (US 2003/0034594) in view of Cavanagh (US 4083498).

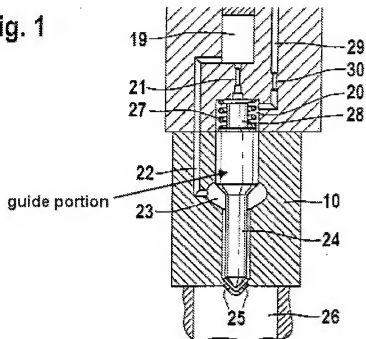
Schmieder discloses all of the elements of claim 29 including a guide portion and needle guide (the angled face prevents misalignment, see examiner generated figure 1) except the injection valve member having a ground surface. Cavanagh teaches a valve member that has been ground to the desired shape (col. 2 lines 38-51) in order to form

sealing zones capable of withstanding the high temperature and pressure conditions present in an engine (col. 1 lines 48-52). It would have been obvious to one having ordinary skill in the art at the time of the invention to use a grinding or polishing process to accurately shape the valve member in order to produce the obvious result of allowing adequate sealing and alignment.

13. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Magel (US 20060043209) in view of Popp (US 6260776).

Magel discloses all of the elements of claim 33, as cited in 102 above, including a pressure chamber (23) surrounding the needle portion and the second spring chamber and pressure chamber communicating hydraulically, except for a ground and polished surface of the injection valve member.

Popp teaches the use of grinding of injector valves and seats in order to provide precise alignment, long seat life, and low leakage (col. 5 lines 21-29). It would have been obvious to one having ordinary skill in the art at the time of the invention to provide the injector of Magel with a ground/polished surface on the injection member guide portion (see examined generated figure 1) in order to produce the obvious result of providing the injection member with precise alignment.

Fig. 1**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL T. SHARPE whose telephone number is (571)270-3766. The examiner can normally be reached on M-Th 9-6 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571)272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Daniel T Sharpe
Examiner
Art Unit 3752

ds
/Len Tran/
Supervisory Patent Examiner, Art Unit 3752